OREM CITY

STORM WATER MASTER PLAN

City Council
General Session

Jan 26, 2016

PUBLIC SERVICES

PARKS

PUBLIC SERVICES

RECREATION

PUBLIC SERVICES

LIBRARY

PUBLIC SERVICES

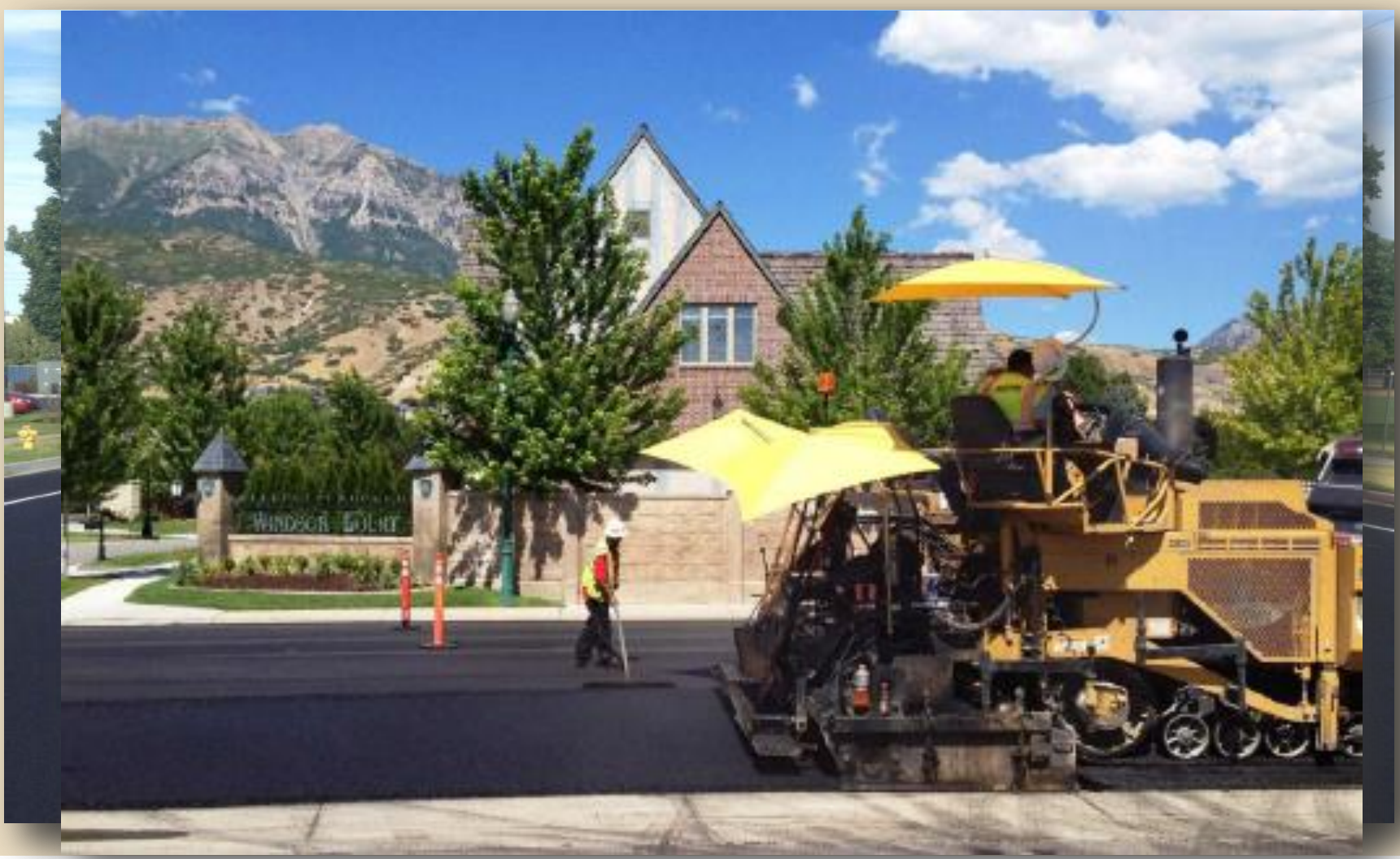
POLICE

PUBLIC SERVICES

FIRE

PUBLIC SERVICES

STREETS



PUBLIC SERVICES

BIKE LANES, TRAFFIC CONTROL, STREETLIGHTS, TRAILS

PRIVATE UTILITIES

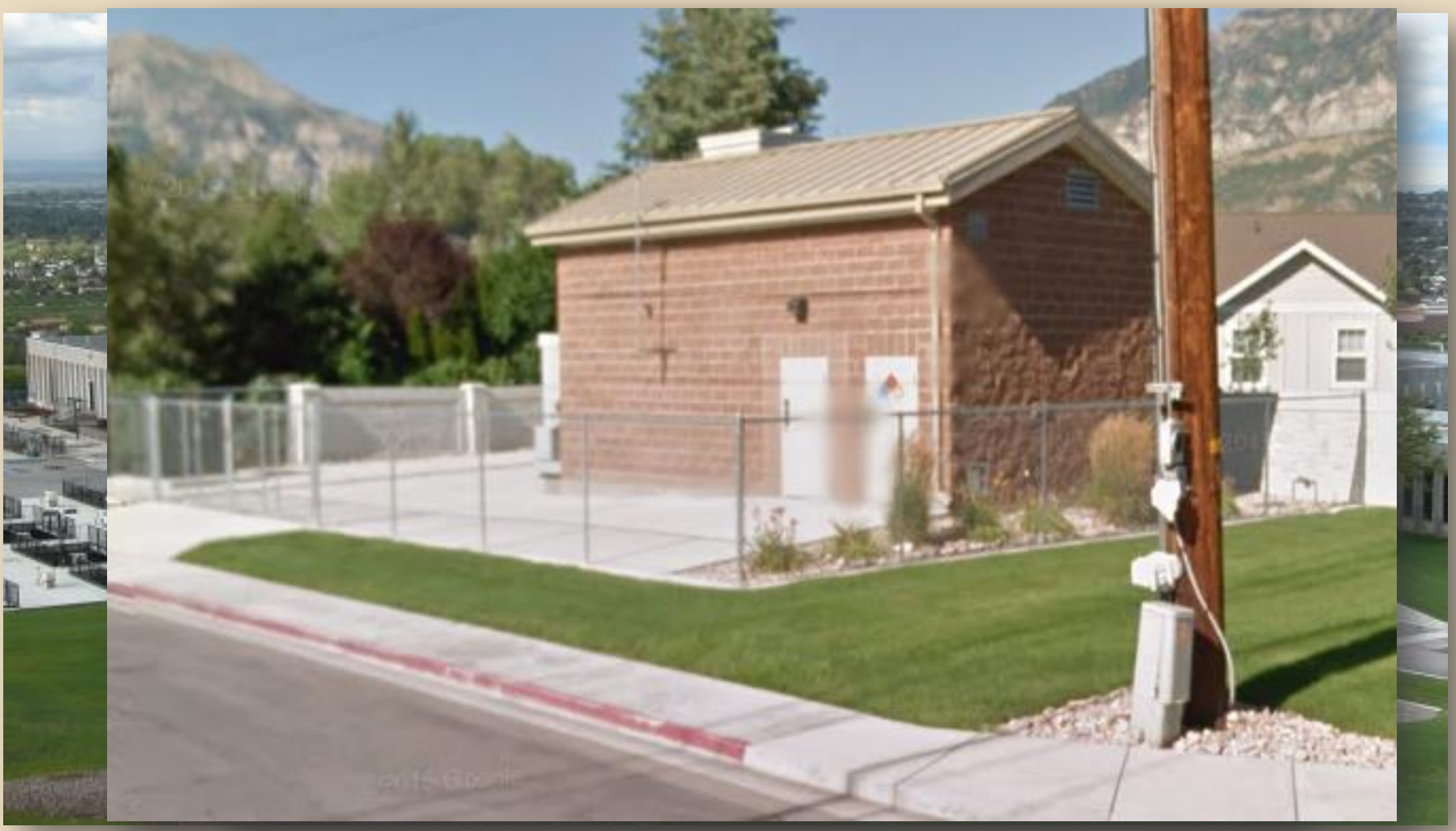
GAS

PRIVATE UTILITIES

ELECTRIC

PUBLIC UTILITIES

DRINKING WATER

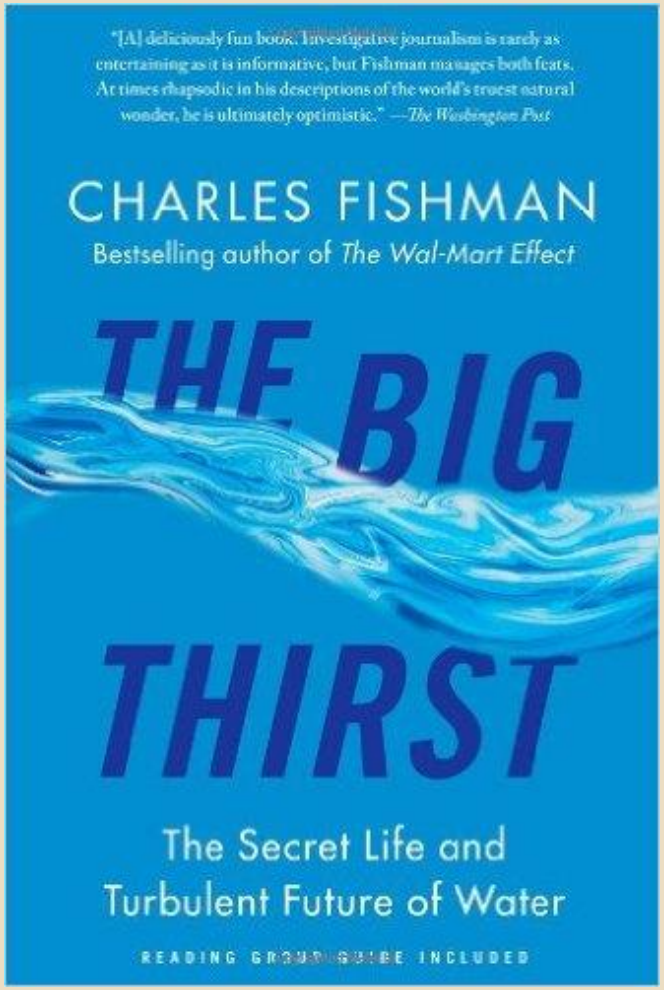


PUBLIC UTILITIES

WASTEWATER

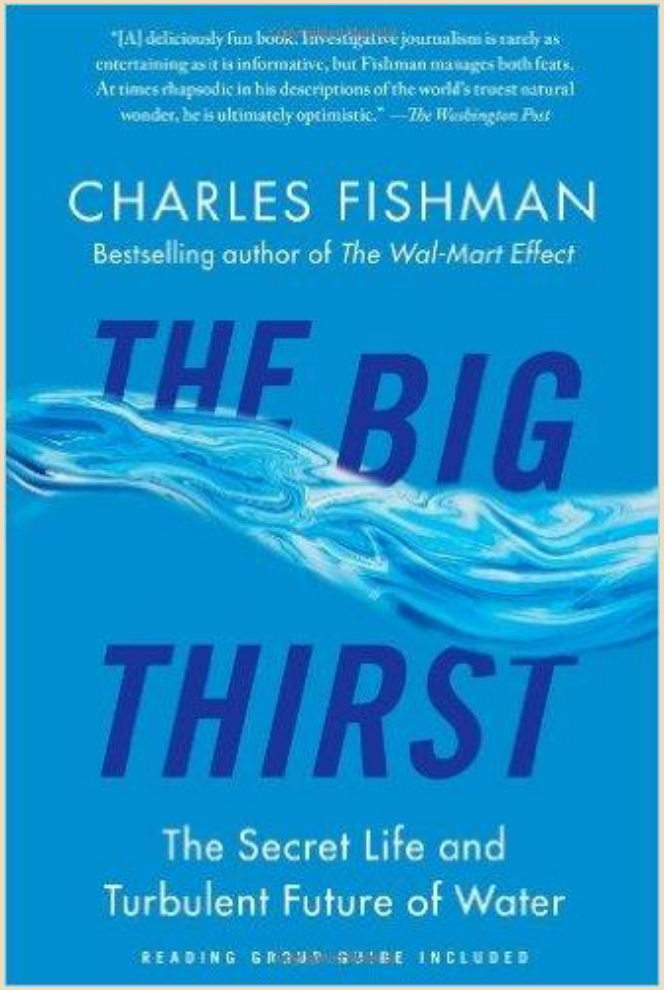
WATER UTILITY CHALLENGES

- "The Big Thirst" Charles Fishman
- Visible Services vs. Invisible
  - Hypothesizes that the "invisibility" of water systems and prevalent philosophies on water being free (of cost) are its biggest vulnerabilities.



WATER UTILITY CHALLENGES

- "The Big Thirst" Charles Fishman
  - *We take great comfort from sliding into a hot bath; and we will pay a thousand times the price of tap water to drink our preferred brand of the bottled version. We love water—but at the moment, we don't appreciate it or respect it. We must rethink how we approach and use water. The good news is that we can. Knowing what to do is not the problem. Ultimately, the hardest part is changing our water consciousness.*



STORM WATER HISTORY

- 1970s
  - Several Federal Regulations passed to protect the environment.
- 1987
  - Congress mandates EPA to control certain storm water discharges.
- 1990
  - Utah issues first permits to large municipalities
- 1996
  - Orem Storm Sewer Utility created in March
    - Numerous findings
    - Improve water quality
    - Protect health and safety of public
    - Enhance water availability
    - Reduce flooding potential
- 1998
  - First Master Plan Created
    - Recommended Projects
    - Proposed rate increases

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STORM WATER UTILITY INFO

- One of numerous unseen utilities
  - Infrastructure used to convey storm water runoff
    - 87.1 miles of pipe
      - Range from 6” to 54” diameter
    - 1,759 sumps
    - 36 Detention basins
    - Many privately managed structures.

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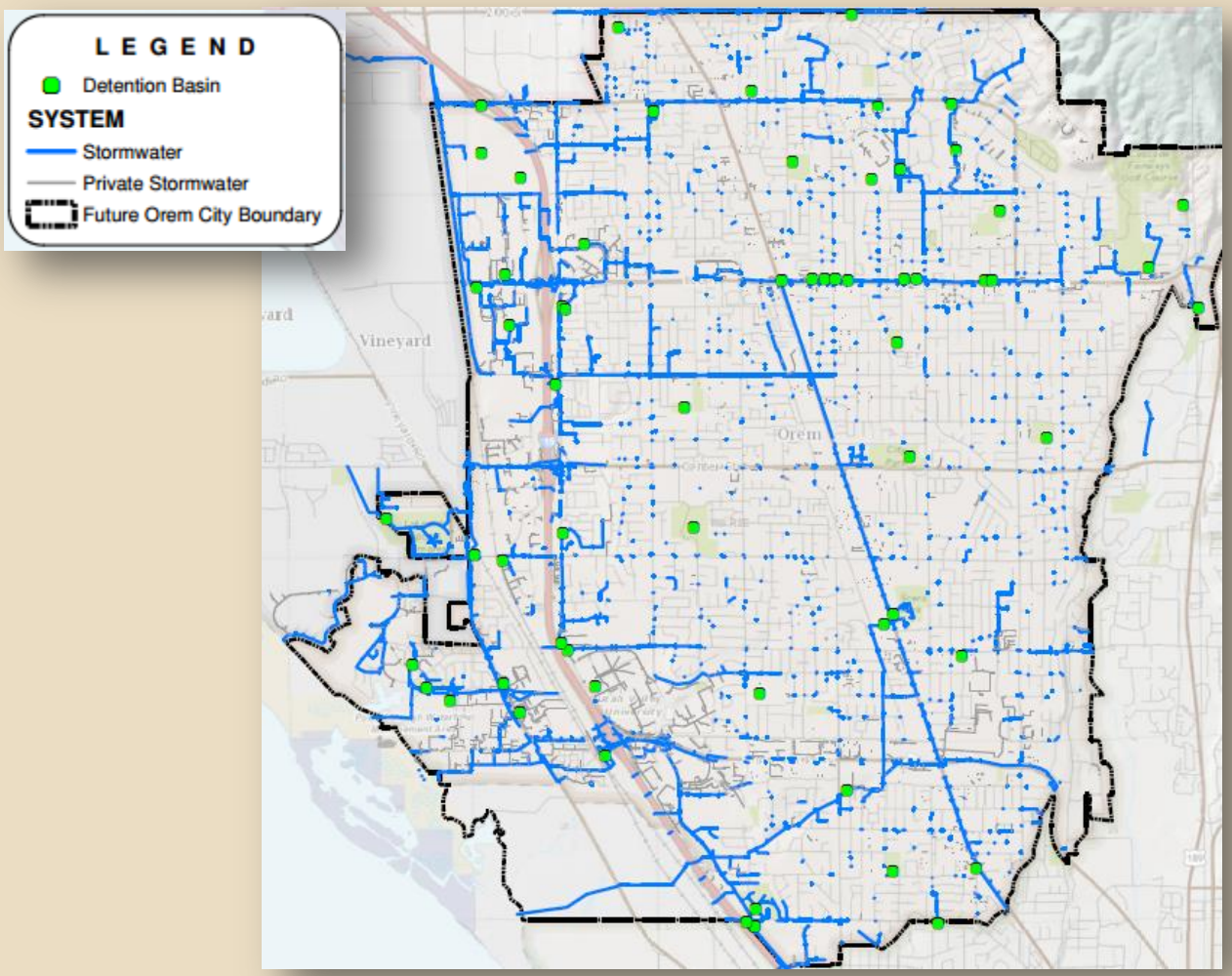
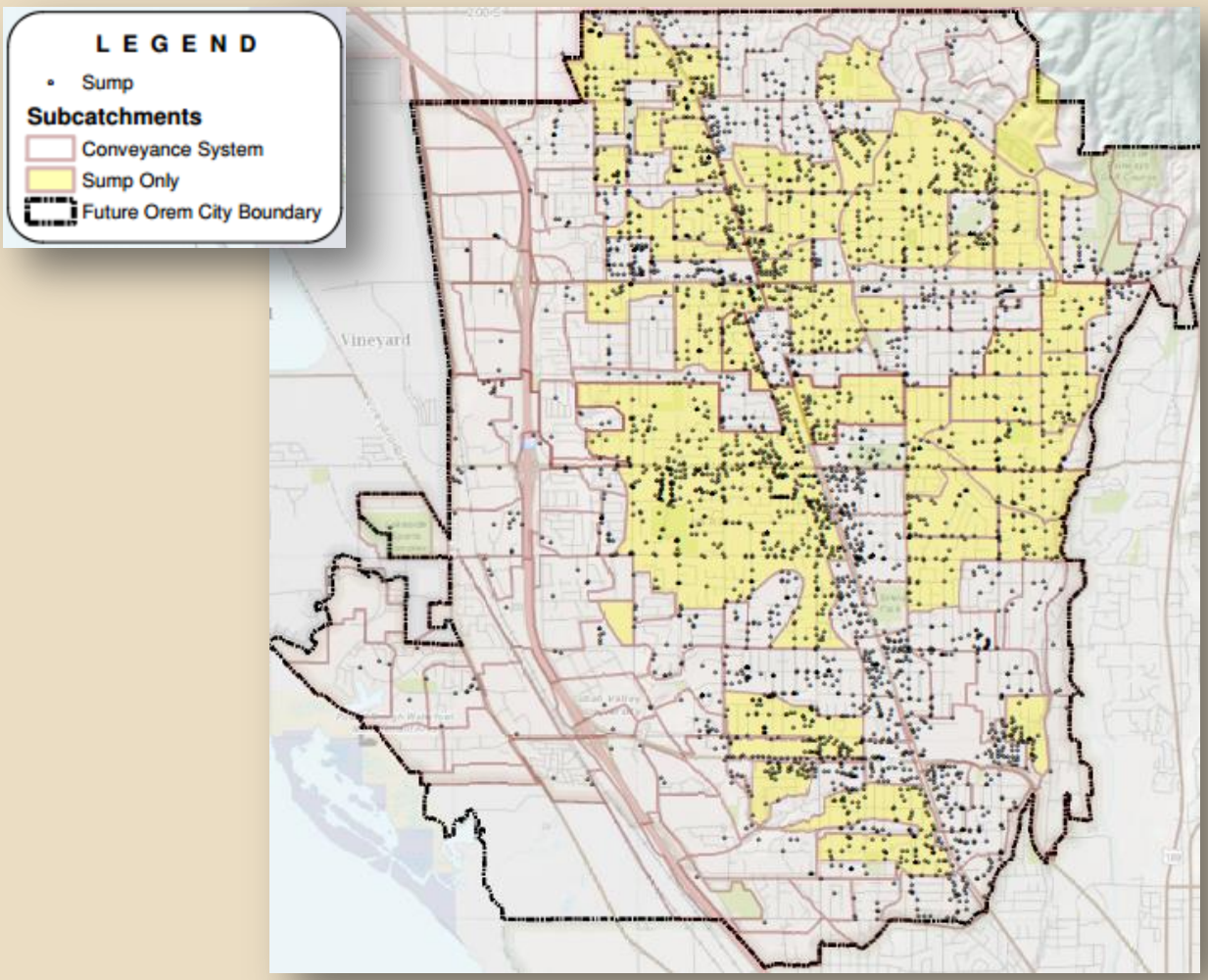
STORM WATER UTILITY

PIPES AND DETENTION BASINS



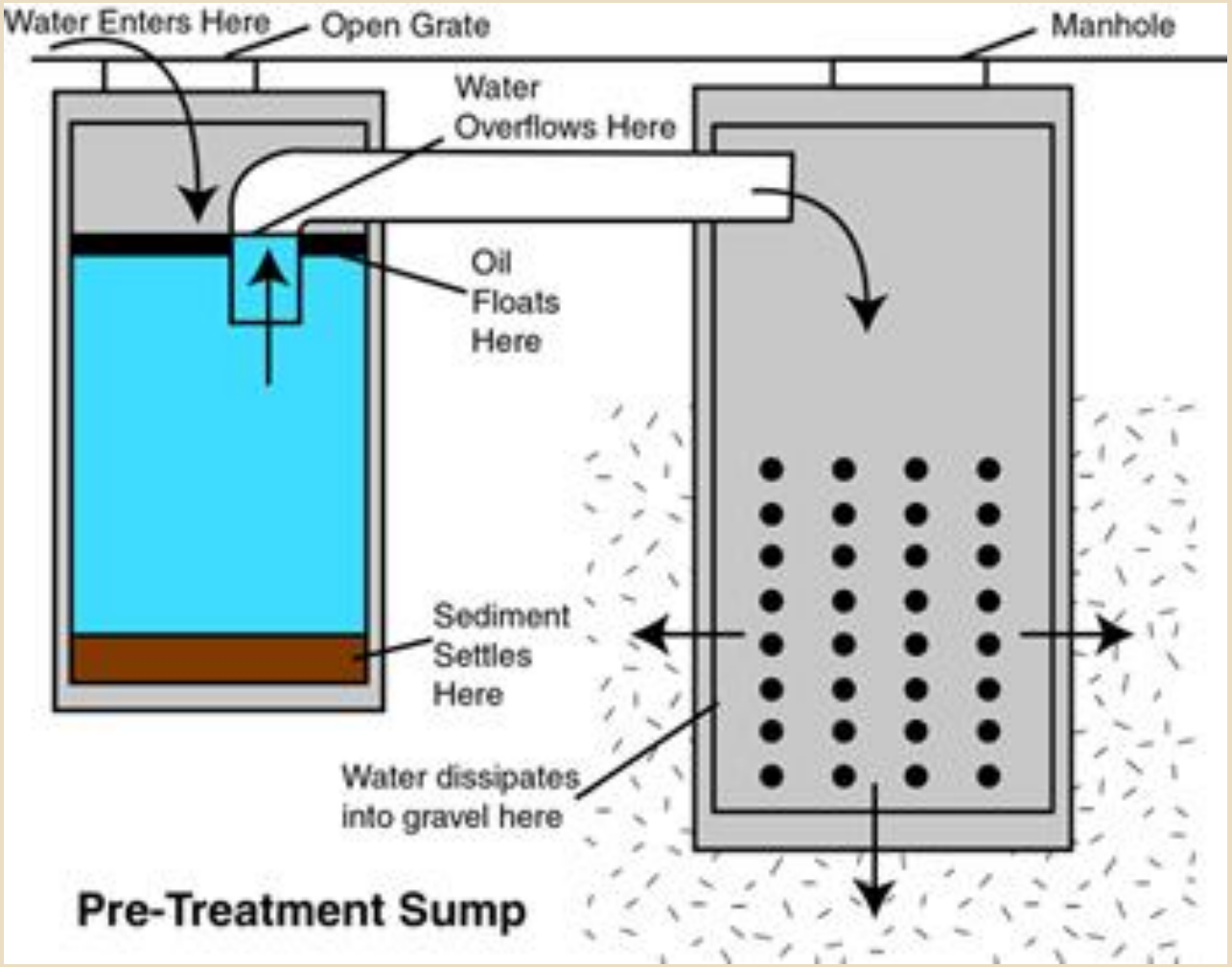
STORM WATER UTILITY

SUMPS



STORM WATER UTILITY

SUMPS



PURPOSE OF MASTER PLAN

- Contracted with Bowen/Collins & Associates, Inc.
  - Provide recommended improvements to resolve existing and projected future deficiencies in the City's storm water system based on the adopted General Plan.
  - Conduct a Rate Study to recommend storm drain rates for the City
  - A working document

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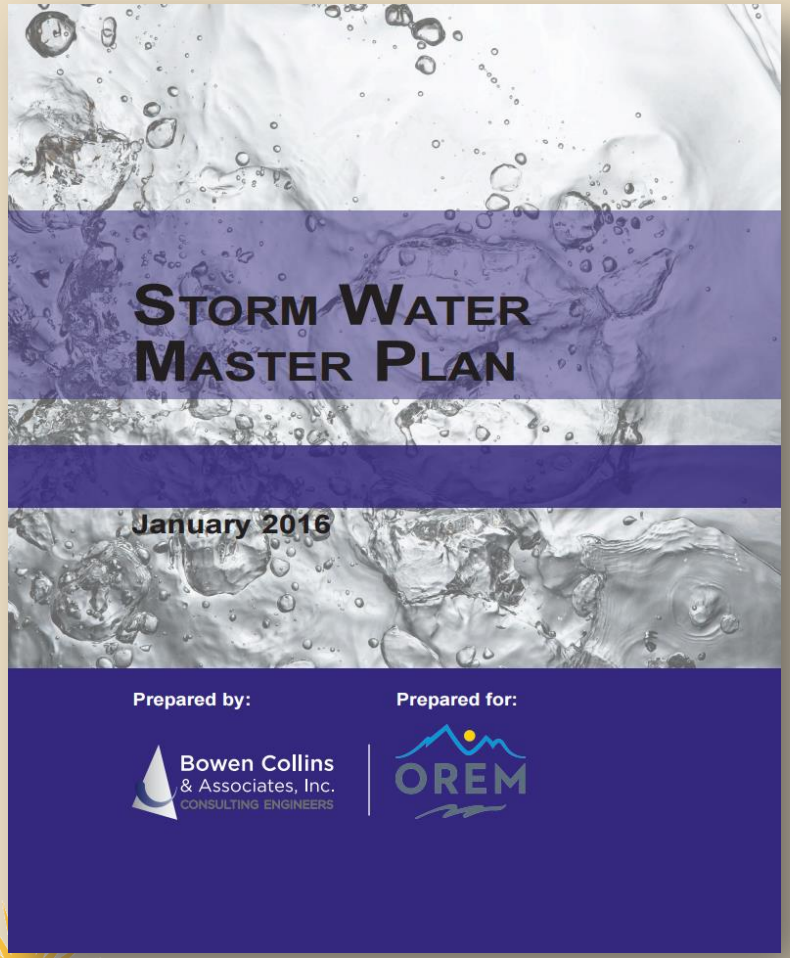
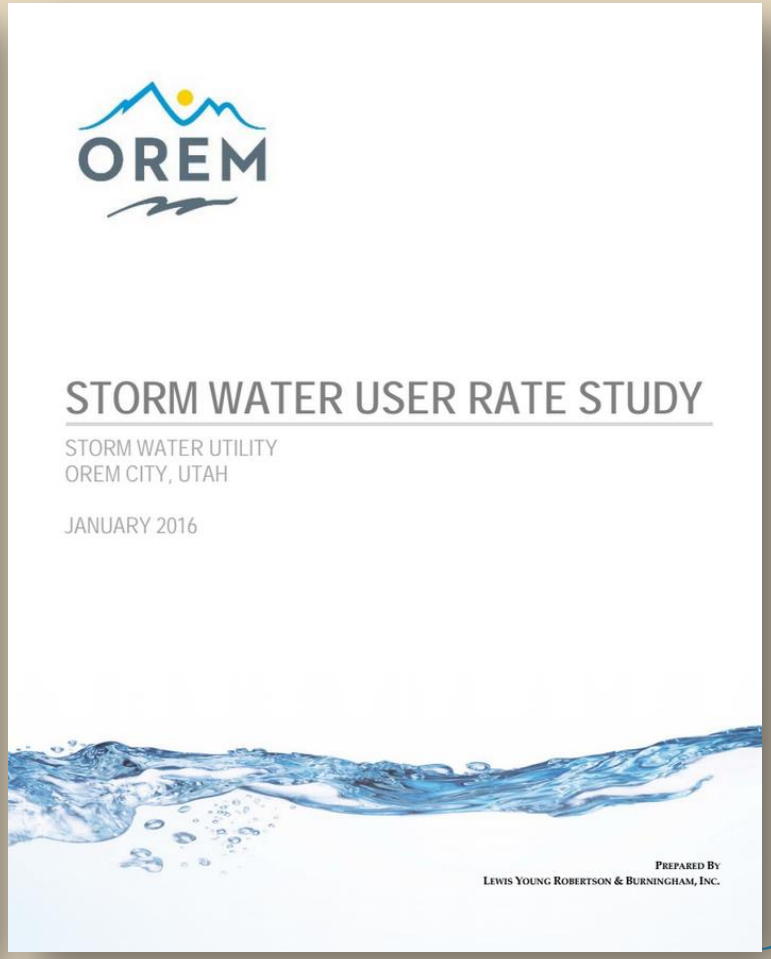
PURPOSE OF MASTER PLAN





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SCOPE OF PROJECT

- Conduct a thorough analysis of City's storm water utility system and its ability to meet the present and future storm water system needs.
  - Review
    - Existing InfoSWMM model
    - Known deficiencies with city staff
  - Collect
    - Supplemental data to update model
  - Modify
    - Existing InfoSWMM model for future conditions
  - Develop
    - **Hydrologic model based on a 10-year storm**
    - **Solutions to existing and future deficiencies and prioritize with staff**
    - **Solutions to protect wellhead protection zones and prioritize with staff**
    - **Utility rate options for the city.**
  - Outreach
    - Public Works Advisory Commission
    - Public open houses to communicate needs to the public
    - Mailers to city residents
    - Website with planning information

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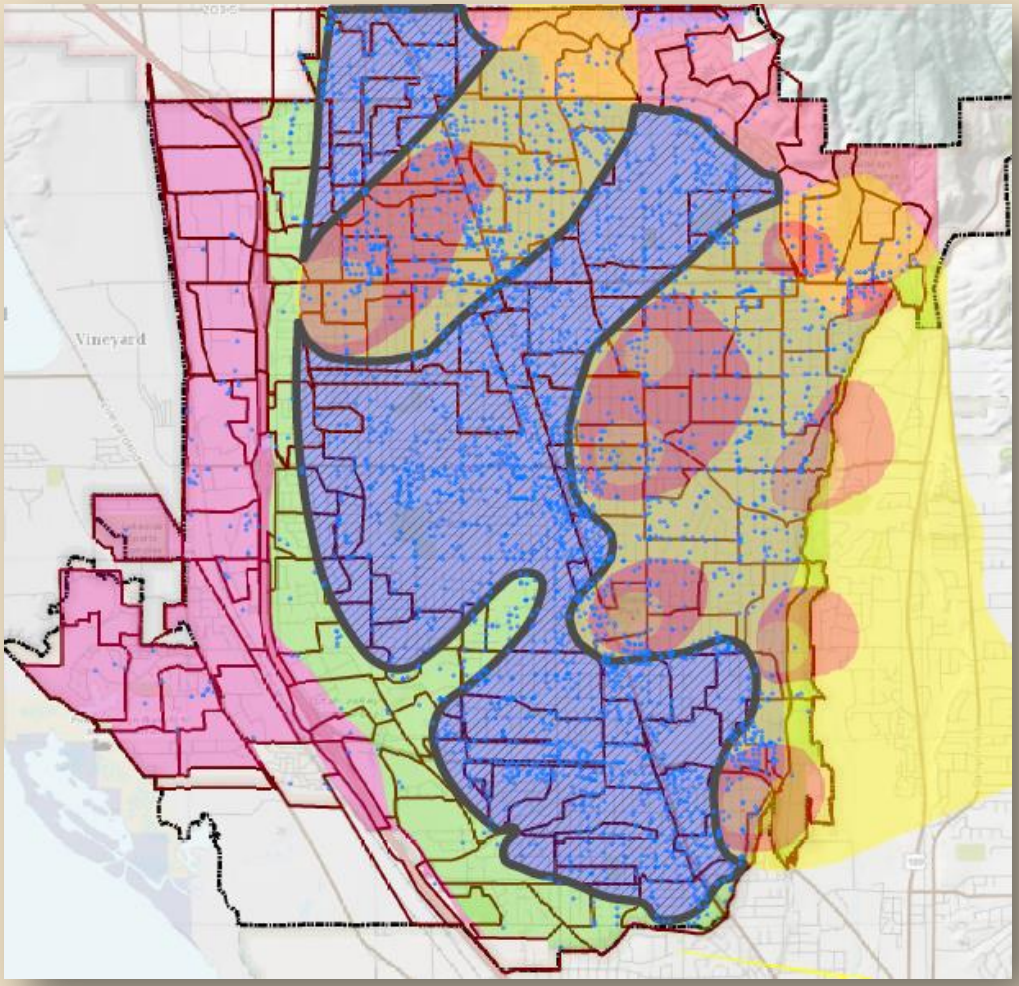
WELLHEAD PROTECTION AREAS



LEGEND

- Sump
- Safe Sump Zone

Wellhead Protection Zones

- 15-Year Zone
- 250 Day Zone
- 3-Year Zone
- Well Location
- Subcatchment Boundary

Soil Type

- Coarse Gravel
- Dense Sand
- Gravel Overlying Clay
- Heavy Clay
- Sand, Loam, and Clay
- Future Orem City Boundary

WELLHEAD PROTECTION AREAS

- Sump elimination
- 1998 Master Plan
  - Technical Review Team
    - Recommended to begin removing sumps from wellhead protection areas.
    - Recommended funding included sump removal.
- State Code: R317-7
  - State of Utah Underground Injection Control (UIC) Program
    - If there is any contamination of the City's drinking water, the regulation could then be used to force abandonment of the sumps.
    - Regulations are trending to be more restrictive.
- Forward thinking
  - Staff and consultant recommend these projects to protect valuable water sources for future generations.

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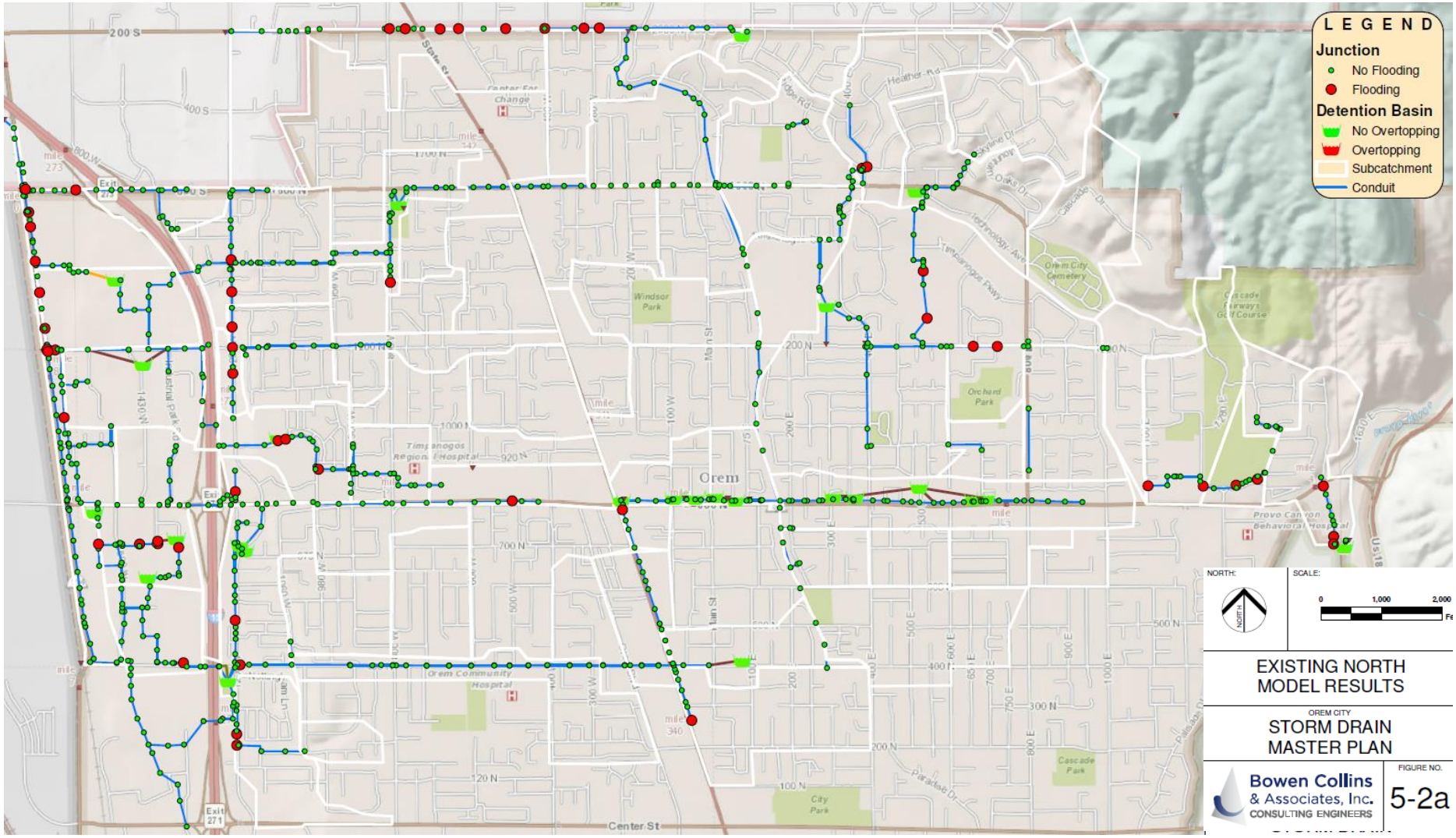
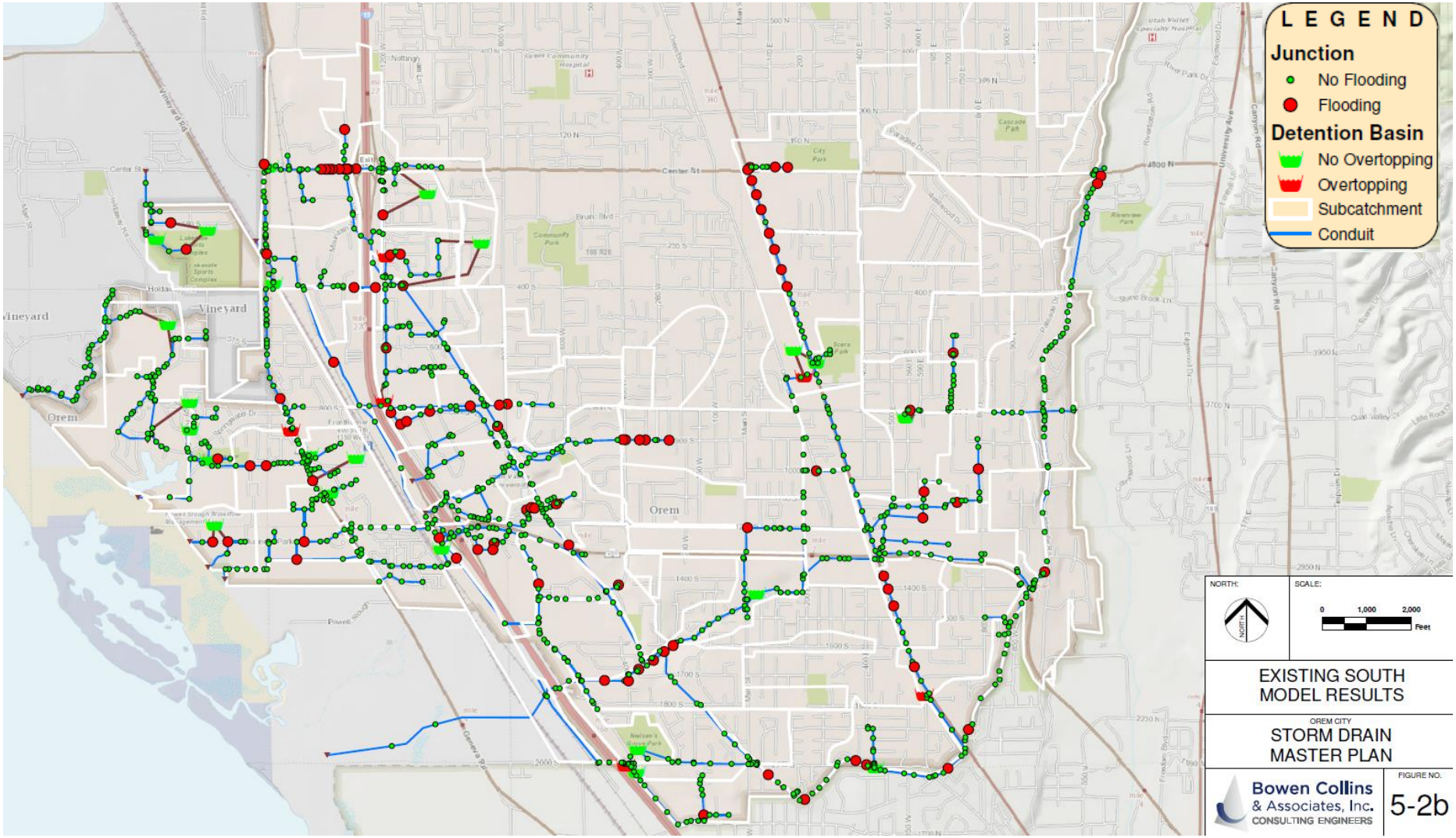
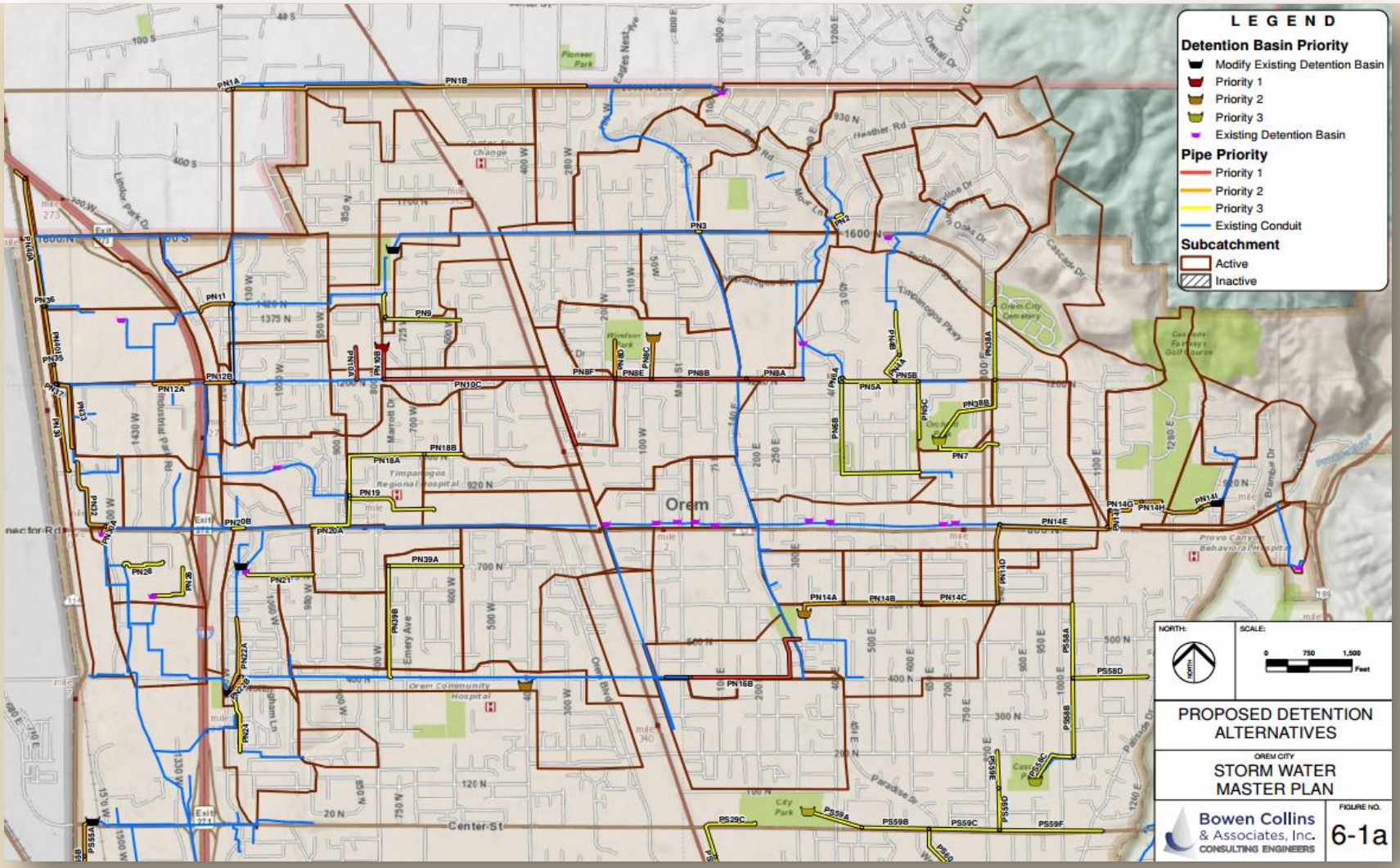
MODEL RESULTS (NORTH)



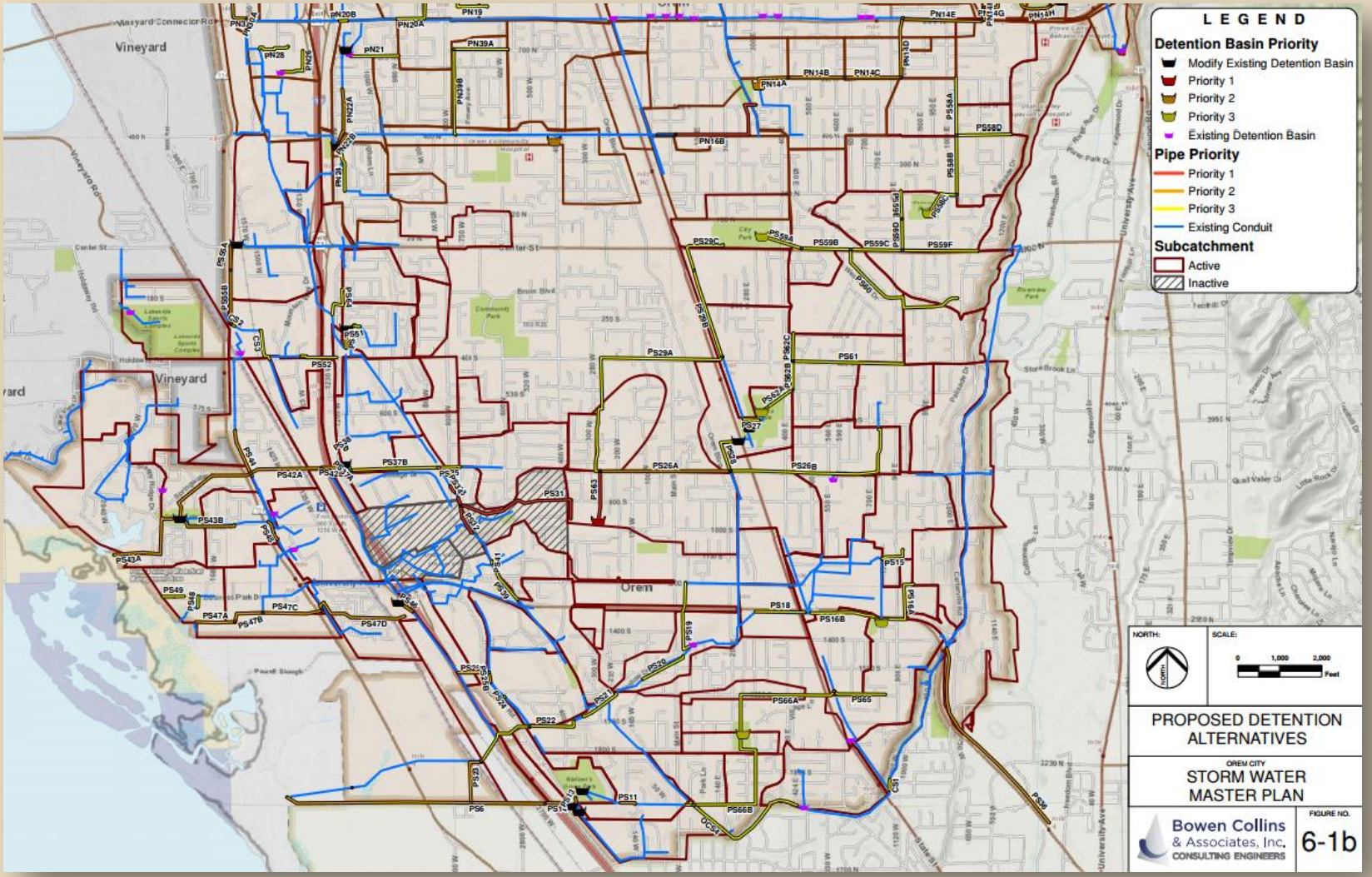
MODEL RESULTS (SOUTH)



PROPOSED PROJECTS (NORTH)



PROPOSED PROJECTS (SOUTH)



TEN-YEAR CIP PLAN

(BASED ON 5-YEAR FUNDING PROPOSAL)

		Rank	Project Idenitifer	Project Name	Estimated FY 2015 Total Cost	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
		Rank	PN16A	400 N (A)	DONE										
High Priority Projects	5-Year Plan (FY2017-2021)	1	PN16B	250 E	$ 573,200	$ 151,000	$ 457,108								
		2	PS31	900 S	$ 629,100		$ 667,412								
		3	PS32	Heat Plant Rd (A)	$ 307,400			$ 335,904							
		4	PS33	Heat Plant Rd (B)	$ 51,500			$ 56,275							
		5	PN10C	1200 N (A)	$ 1,376,600			$ 1,022,889	$ 495,800						
		6	DBN2	Bonneville School DB	$ 419,600				$ 472,263						
		7	PN10A	Bonneville School	$ 111,700				$ 125,719						
		8	PN10B	800 W	$ 256,400				$ 288,580						
		9	PN8F	1200 N (E)	$ 231,000				$ 194,994	$ 66,948					
		10	PN8E	1200 N (D)	$ 133,600					$ 154,879					
		11	PN8B	1200 N (C)	$ 408,900					$ 474,027					
		12	PN8A	1200 N (B)	$ 208,900					$ 242,172					
		13	DBS5	Lakeridge Jr. High DB	$ 894,300					$ 756,819	$ 288,317				
		14	PS63	Lakeridge Jr. High	$ 673,200						$ 803,836				
	10-year plan (thru 2025)	15	PS26A	2000 S (B)*	$ 1,016,300						$ 388,810				
		16	DBN3	Taylor Drain Outlet**	$ 473,800						$ -				
		17	PN8D	800 S (C)	$ 135,300						$ 291,244	$ 949,940			
		18	PN8C	Windsor Park DB	$ 159,600							$ 582,714			
		19	PN40A	1200 N (E)	$ 66,900							$ 166,402			
		20	PN40B	1200 N (D)	$ 550,400							$ 157,030	$ 40,435		
		21	PN40C	1200 N (C)	$ 1,071,500								$ 84,747		
		22	PN40D	Geneva Rd (E)	$ 168,500								$ 697,230		
		23	PN34	2000 S (C)	$ 673,200								$ 1,126,596	$ 237,671	
		24	PN33	Nielson Grove Park	$ 444,700									$ 219,854	
		25	PN32	Geneva Rd (D)	$ 656,200									$ 878,373	
		26	PN12A	Geneva Rd (C)	$ 174,300									$ 580,233	
		27	PN12B	Geneva Rd (B)	$ 108,300									$ 102,743	$ 776,053
		28	PN11	600 N (A)	$ 179,300										$ 234,245
		29	DBN5	600 N (B)	$ 935,000										$ 145,546
		30	PN14A	1200 N (G)	$ 278,400										$ 240,964
		31	PN14B	Sharon Park DB	$ 441,700										$ 691,109
			M1	Misc. maintenance	$ 970,874	$ 100,000	$ 103,000	$ 106,090	$ 109,273	$ 112,551	$ 115,927	$ 119,405	$ 122,987	$ 126,677	$ 130,477
			Repairs	Emergency repairs	$ 970,874	$ 100,000	$ 103,000	$ 106,090	$ 109,273	$ 112,551	$ 115,927	$ 119,405	$ 122,987	$ 126,677	$ 130,477
			Fleet	Fleet Costs	$ 3,189,342	$ 537,268	$ 538,554	$ 414,311	$ 334,063	$ 296,522	$ 305,276	$ 314,293	$ 302,873	$ 311,894	$ 321,186
				TOTAL	**$ 18,939,890**	**$ 888,268**	**$ 1,869,074**	**$ 2,041,559**	**$ 2,129,965**	**$ 2,216,469**	**$ 2,309,337**	**$ 2,409,189**	**$ 2,497,855**	**$ 2,584,122**	**$ 2,670,057**

*Portion not paid by developer

**Will be paid by developer

PROPOSED PROJECT COSTS

- Major Conveyance Facilities (Pipelines)
  - 144 projects (New, Parallel, Reroute, Upsize)
  - $54.6 million*
- Open Channel Improvements (Irrigation Ditches)
  - 1 project, Modify
  - $41,000*
- Detention Basin Improvements
  - 24 projects (New, Modify)
  - $6.5 million*
- Culvert Improvements
  - 3 projects
  - $216,000*
- TOTAL: $61 Million*

**Present Value*

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STORM WATER UTILITY FUNDING

- Direction from city council was
  - “Pay as you go”
  - No new debt!

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DEBT
DEBT
DEBT

HOW IS THE STORM WATER UTILITY FUNDED?

- Storm Water Fee
  - Based on amount of impervious surface.
  - Equivalent Service Unit (ESU)
    - Equal to the average impervious surface of a residential property.
      - 1 ESU = 2,700 sq. ft.
      - $5.25 per ESU (Current rate)
- All single-family units are charged 1 ESU per month.
- Businesses are charged according to their impervious surface area
  - Example: A business with 27,000 sq. ft. of impervious surface (e.g., roof, parking lot, walk ways) would be charged for 10 ESUs, or $52.50/month.
  - Opportunity to receive credits by implementing qualifying BMPs.

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STORM WATER UTILITY FUNDING

AN EXAMPLE

- Costco
  - 264 ESUs
    - Roof, parking lot, sidewalks
  - 700,000 sq. ft. impervious area
  - $1,386/month
- Credit Program
  - Best management practices
  - 23 ESUs
  - $120.75
- Total each month
  - $1,265.25

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STORM WATER UTILITY FUNDING

AN EXAMPLE

- Average Resident
  - 1 ESU
    - Roof, driveway, walkways
  - 2,700 sq. ft. impervious area
  - $5.25 month

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STORM WATER UTILITY FUNDING

AN EXAMPLE

- Costco
  - 264 ESU
  - 713,000 sq. ft. impervious area
  - $1,265.25/month
- Average Resident
  - 1 ESU
  - 2,700 sq. ft. impervious area
  - $5.25 month

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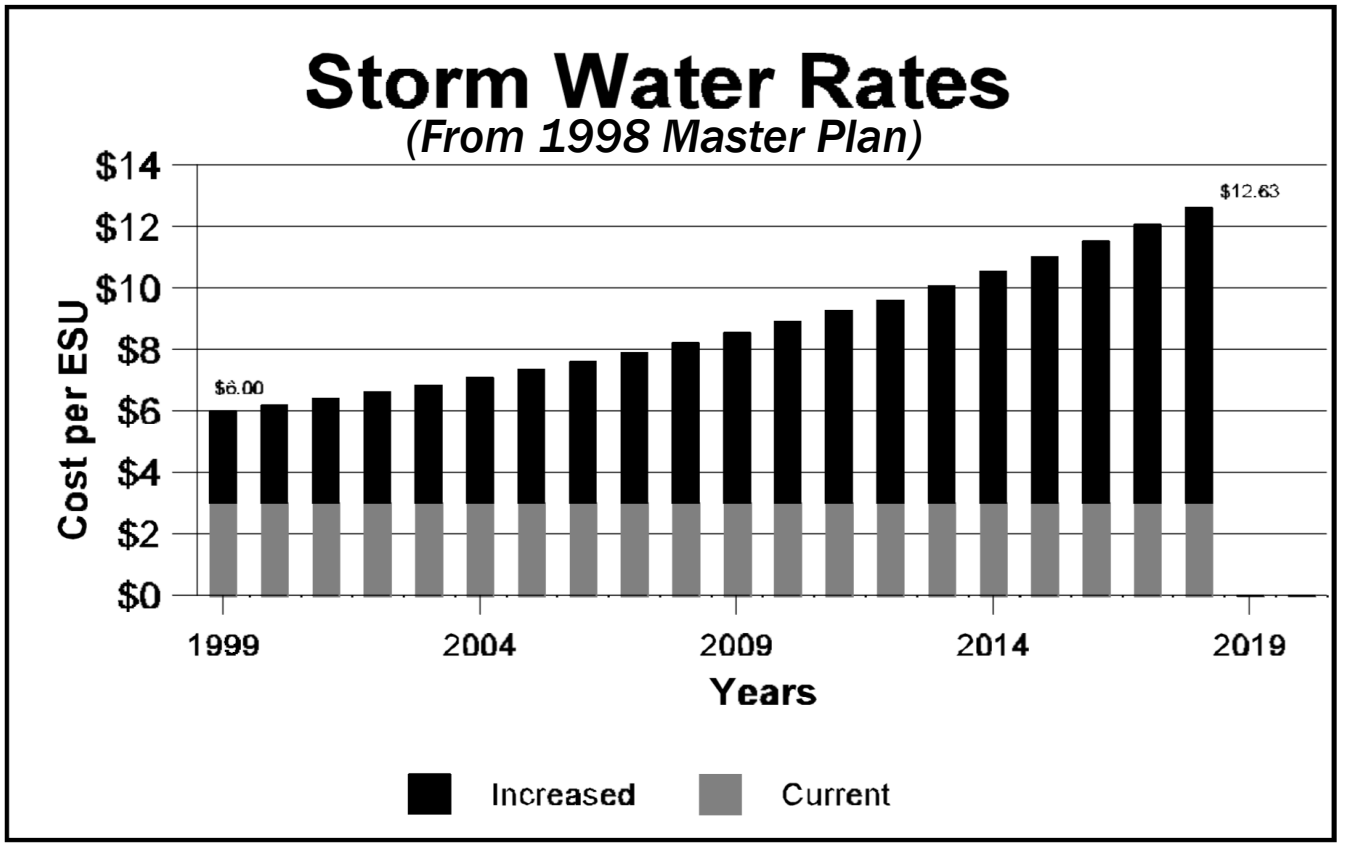
STORM WATER RATES



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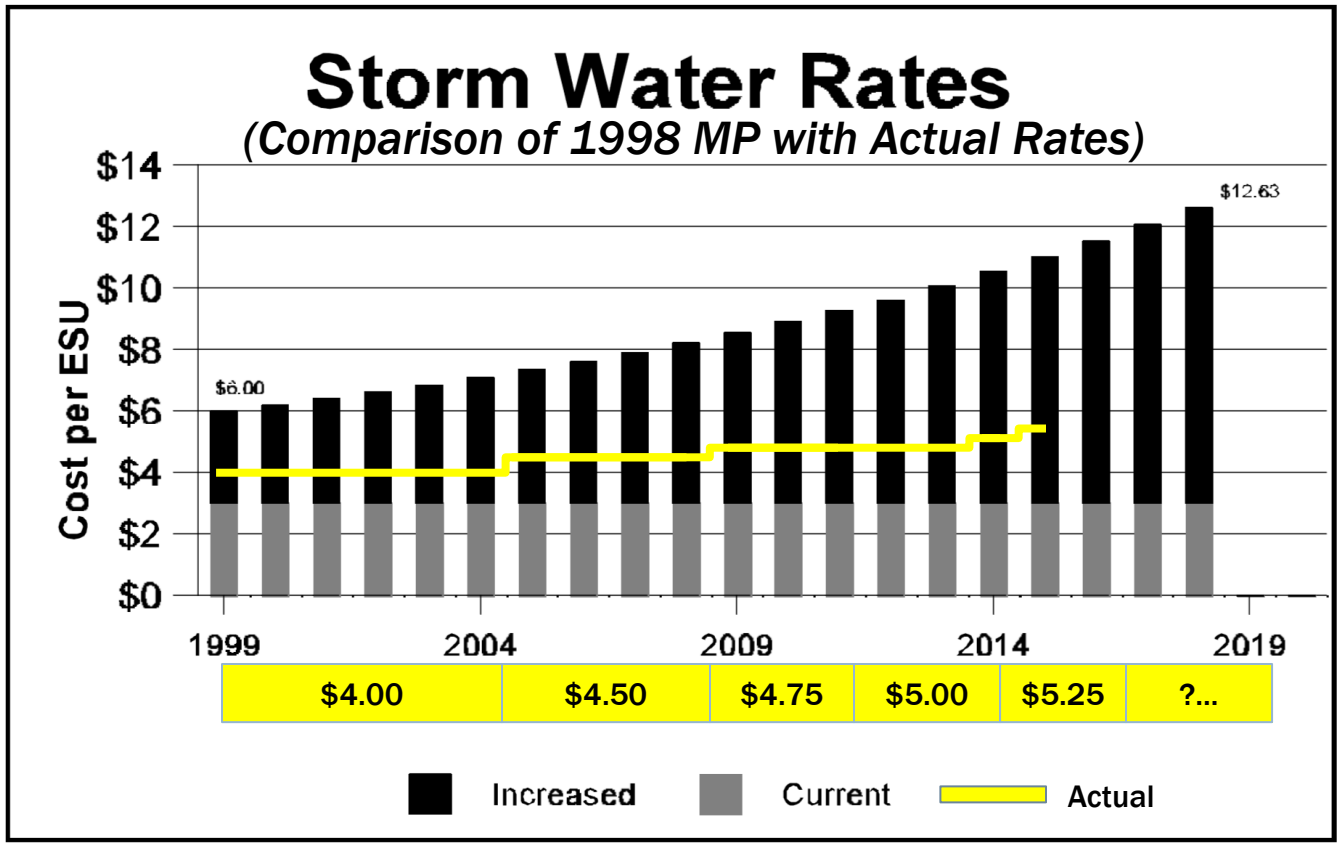

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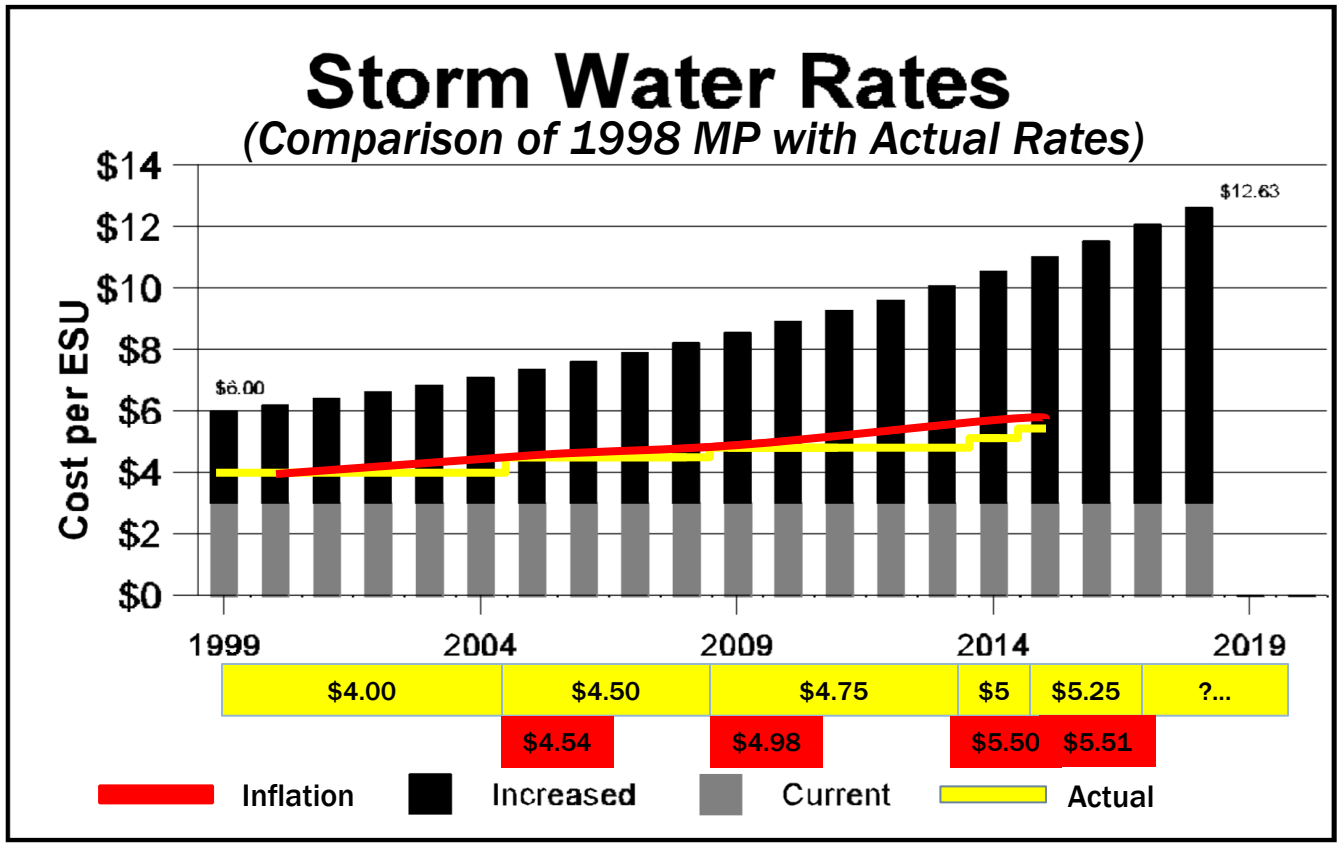
DEERING
ARKANSAS
DEMOCRAT-GAZETTE
I REALIZE THAT YOU GUY'S ARE ALL CAUGHT UP IN "THE MOMENT," BUT SOME OF US THINK IT WOULD BE SAFER TO KICK THE CAN DOWN THE ROAD.
DECLARATION OF INDEPENDENCE

STORM WATER RATES



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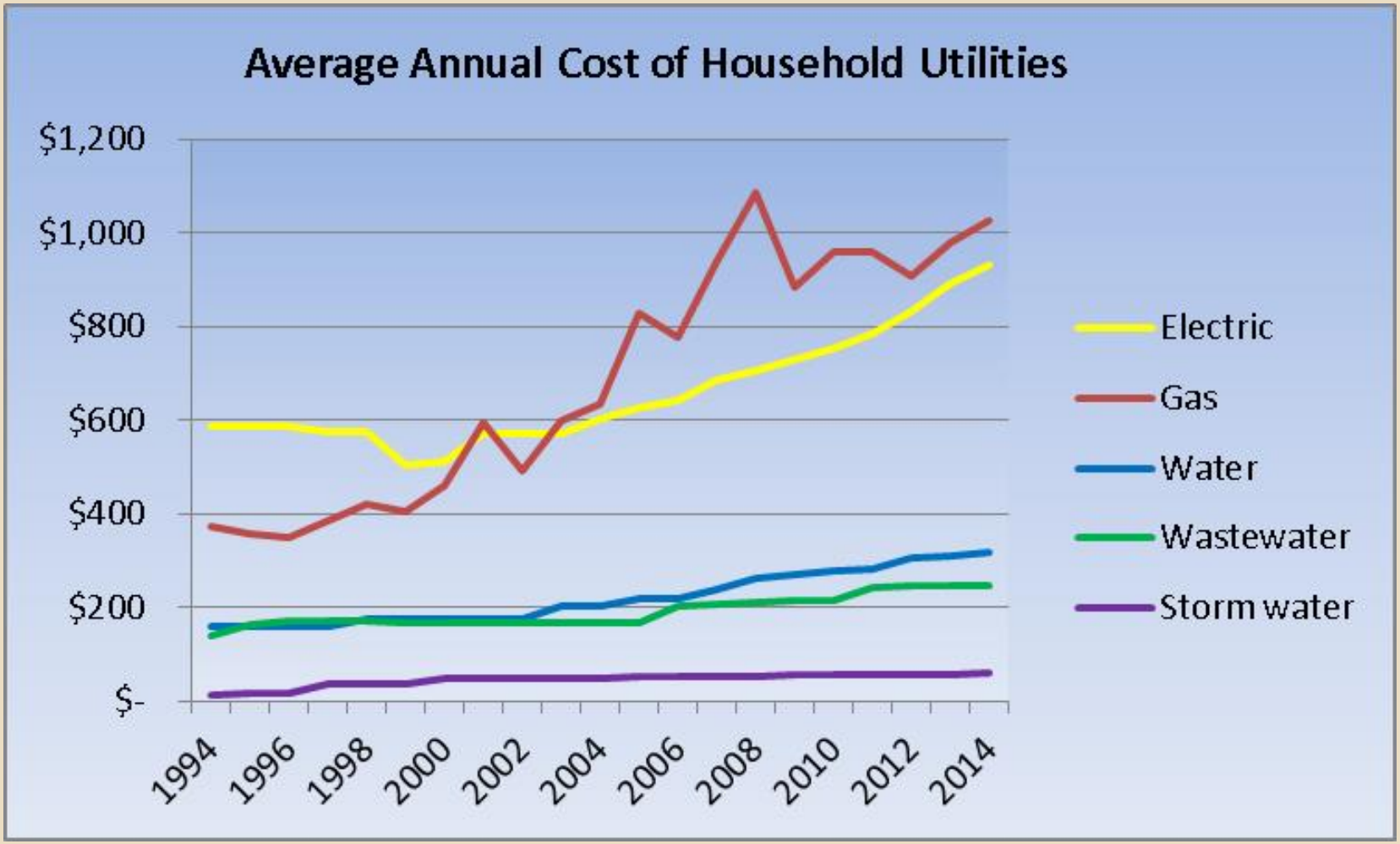
COMPARISON OF UTILITIES



STORM WATER RATE OPTIONS

Scenario 1: 5-Year				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
Current	$5.25	$0.00	$0.00	$750,000
Year 1	$6.25	$1.00	$1.00	$1,550,000
Year 2	$6.75	$0.50	$1.50	$1,800,000
Year 3	$7.10	$0.35	$1.85	$2,000,000
Year 4	$7.35	$0.25	$2.10	$2,150,000
Year 5	$7.60	$0.25	$2.35	$2,307,660
Year 6	$7.80	$0.20	$2.55	$2,405,017
Year 7	$8.00	$0.20	$2.75	$2,487,312
Year 8	$8.20	$0.20	$2.95	$2,572,421
Year 9	$8.40	$0.20	$3.15	$2,660,441
Year 10	$8.60	$0.20	$3.35	$2,751,470
Effect on CIP	**$0**			

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STORM WATER RATE OPTIONS

Scenario 2: 7-Year				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
Current	$5.25	$0.00	$0.00	$750,000
Year 1	$5.95	$0.70	$0.70	$1,453,561
Year 2	$6.40	$0.45	$1.15	$1,663,228
Year 3	$6.85	$0.45	$1.60	$1,856,487
Year 4	$7.15	$0.30	$1.90	$2,020,574
Year 5	$7.45	$0.30	$2.20	$2,177,369
Year 6	$7.75	$0.30	$2.50	$2,337,810
Year 7	$8.00	$0.25	$2.75	$2,487,312
Year 8	$8.20	$0.20	$2.95	$2,572,421
Year 9	$8.40	$0.20	$3.15	$2,660,441
Year 10	$8.60	$0.20	$3.35	$2,751,470
Effect on CIP	**-$725,000**			

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STORM WATER RATE OPTIONS

Scenario 3: 10-Year				
Year	Cost per ESU	Monthly Increase per ESU	Cumulative Increase	Total CIP
2016	$5.25	$0.00	$0.00	$750,000
2017	$5.85	$0.60	$0.60	$1,403,625
2018	$6.25	$0.40	$1.00	$1,580,771
2019	$6.60	$0.35	$1.35	$1,751,754
2020	$6.90	$0.30	$1.65	$1,907,334
2021	$7.20	$0.30	$1.95	$2,058,293
2022	$7.50	$0.30	$2.25	$2,209,252
2023	$7.80	$0.30	$2.55	$2,348,657
2024	$8.10	$0.30	$2.85	$2,480,361
2025	$8.40	$0.30	$3.15	$2,618,226
2026	$8.60	$0.20	$3.35	$2,751,470
Effect on CIP	-$1,600,000			

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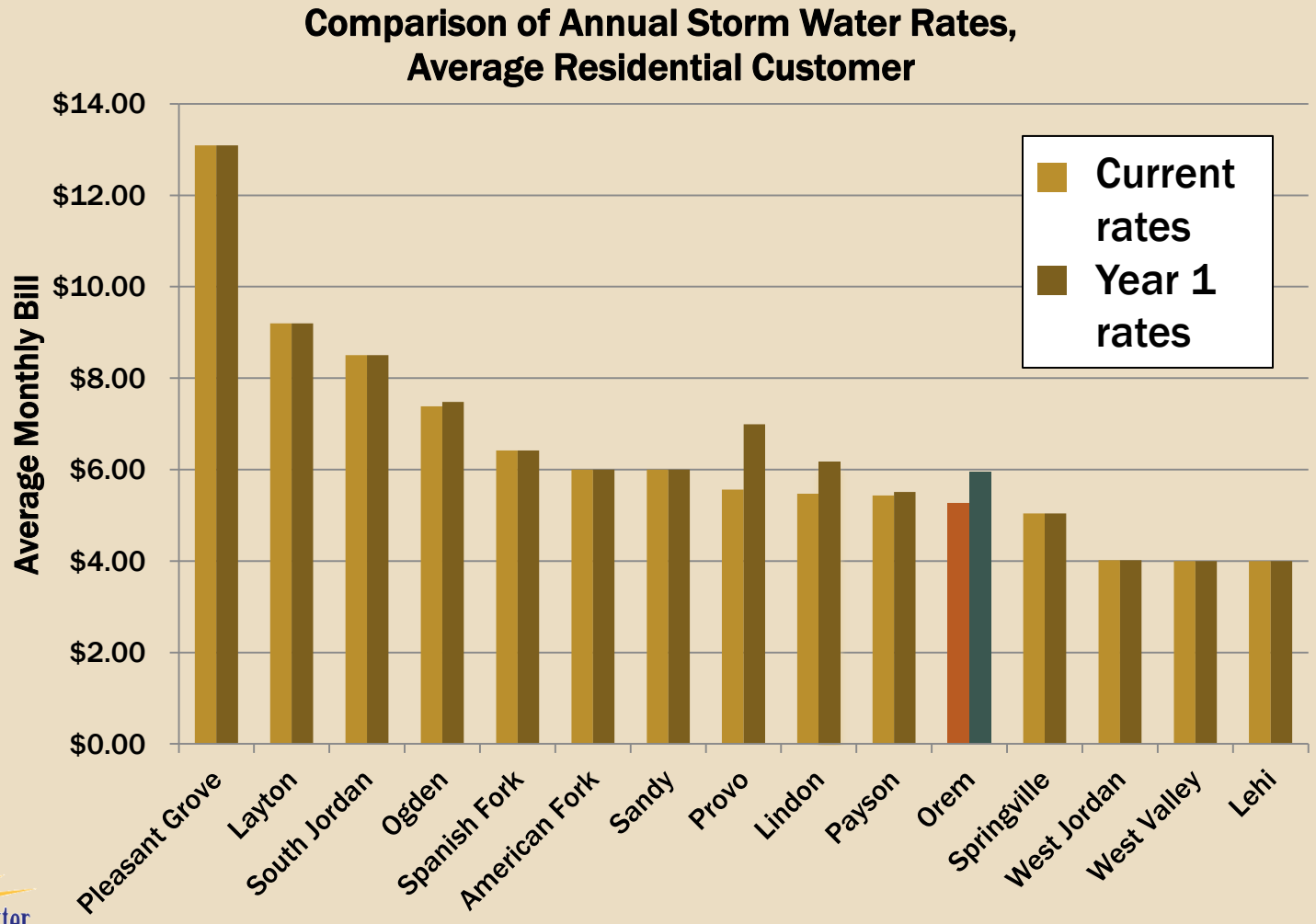
OTHER CITIES STORM WATER RATES



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THE PATH FORWARD

- Adopt Storm Water Master Plan
- Accept the Storm Water User Rate Study
  - Adopt new rates as soon as possible
- Plans are available online at utilities.orem.org

QUESTIONS?

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